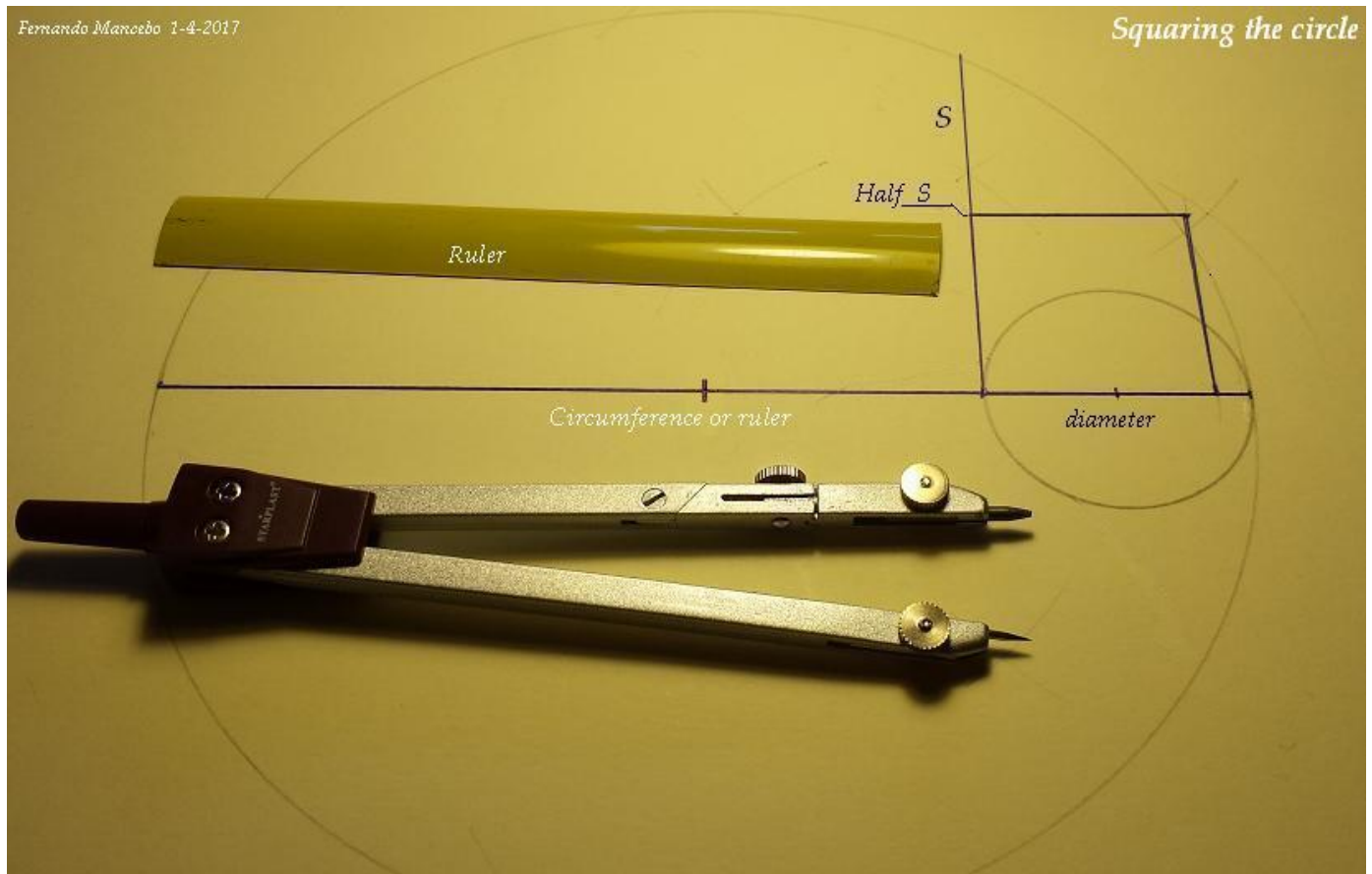


Squaring the Circle

Pattern for squaring circles

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Squaring the circle

Foundation

The essence of this method is the initial use of a hard and real circumference (and its interior circle) to get in real procedure the diameter of this circumference and circle to later on proceed to squaring the circle on the paper.

Later with these obtained data, we proceed to the construction of a Pattern for squaring successive circles easily.

For this work, we need firstly as tool a compass for capturing the diameter of the circumference.

Later on when we need it, the ruler will be manufactured with the material of the circumference.

In this work it is followed the requirements of:

- The Compass can produce arcs and circumferences, also measure and transport segments.
- The Ruler only can mark straight lines and unite points previously marked.

Working on

To squaring circles we go to squaring a first circle with a practical and real (hard) procedure and later on to build a pattern that allows us squaring successive circles using simply this pattern.

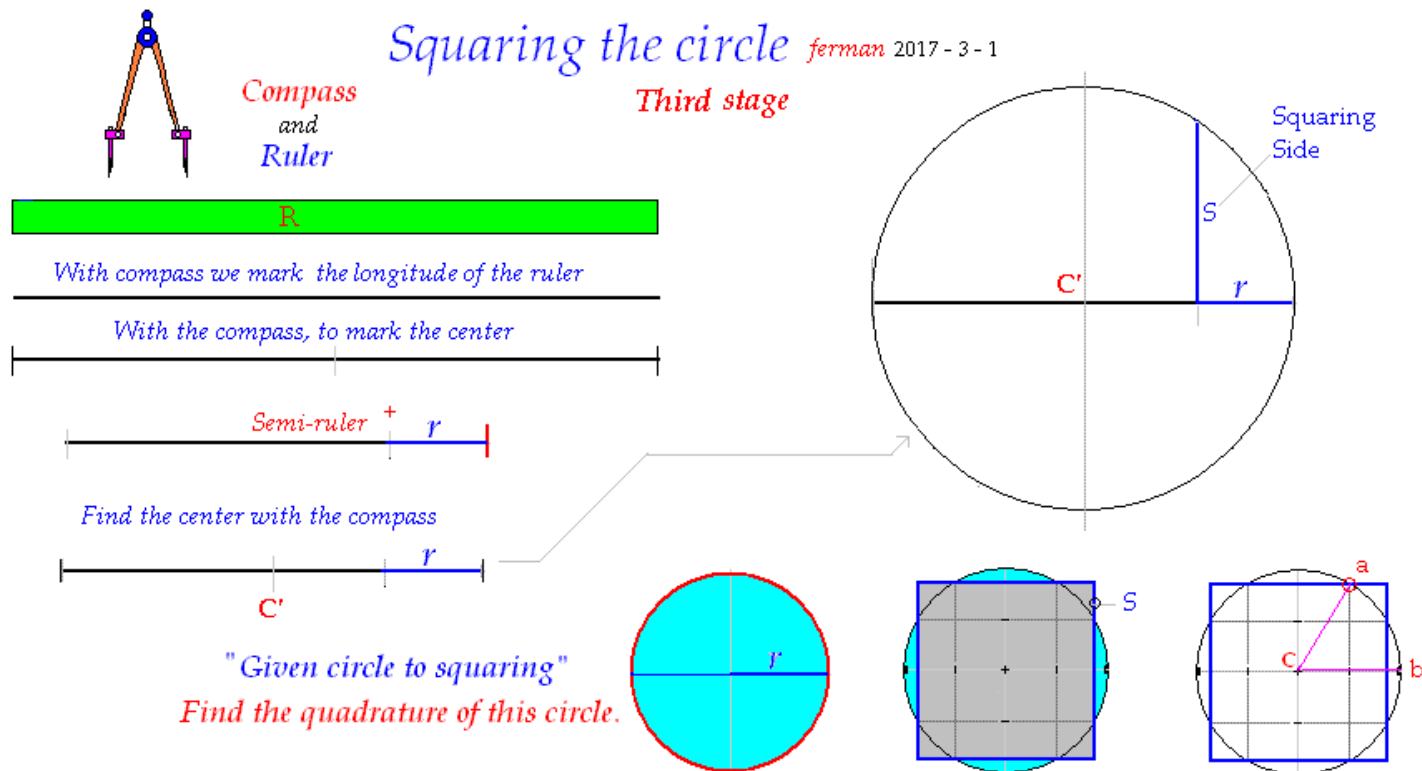
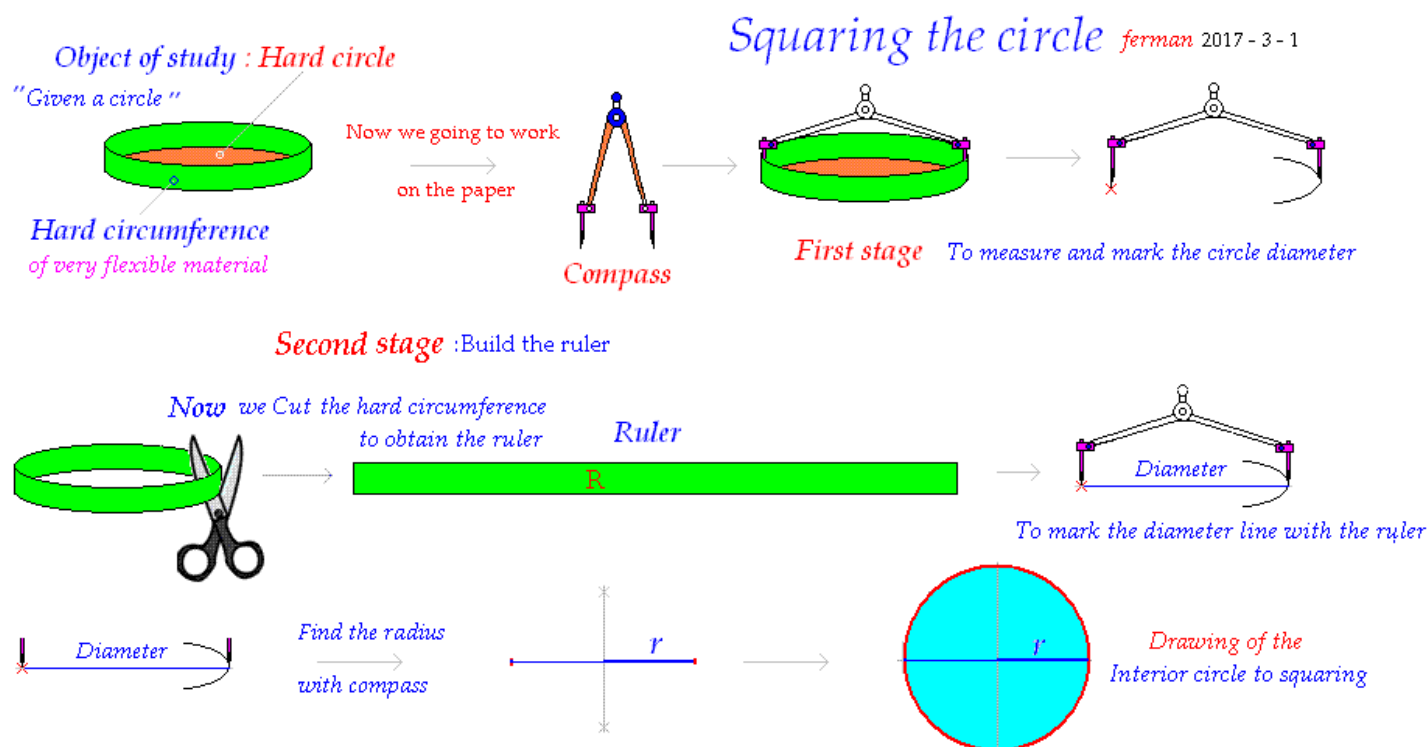
Why this procedure?

Because of we must to avoid the numeric value of the Pi number to be a transcendental number.

Later, and taking advantage of this procedure, we go to produce a pattern for being used in posterior squaring.

Observation!: Like the Greeks considered, we understand that all tools and our own measurements are ideal and accurate.

So, we proceed to make the practical construction of the quadrature of a practical circle, firstly step by step to explain it clearer; and later a more compact form of more easy construction.



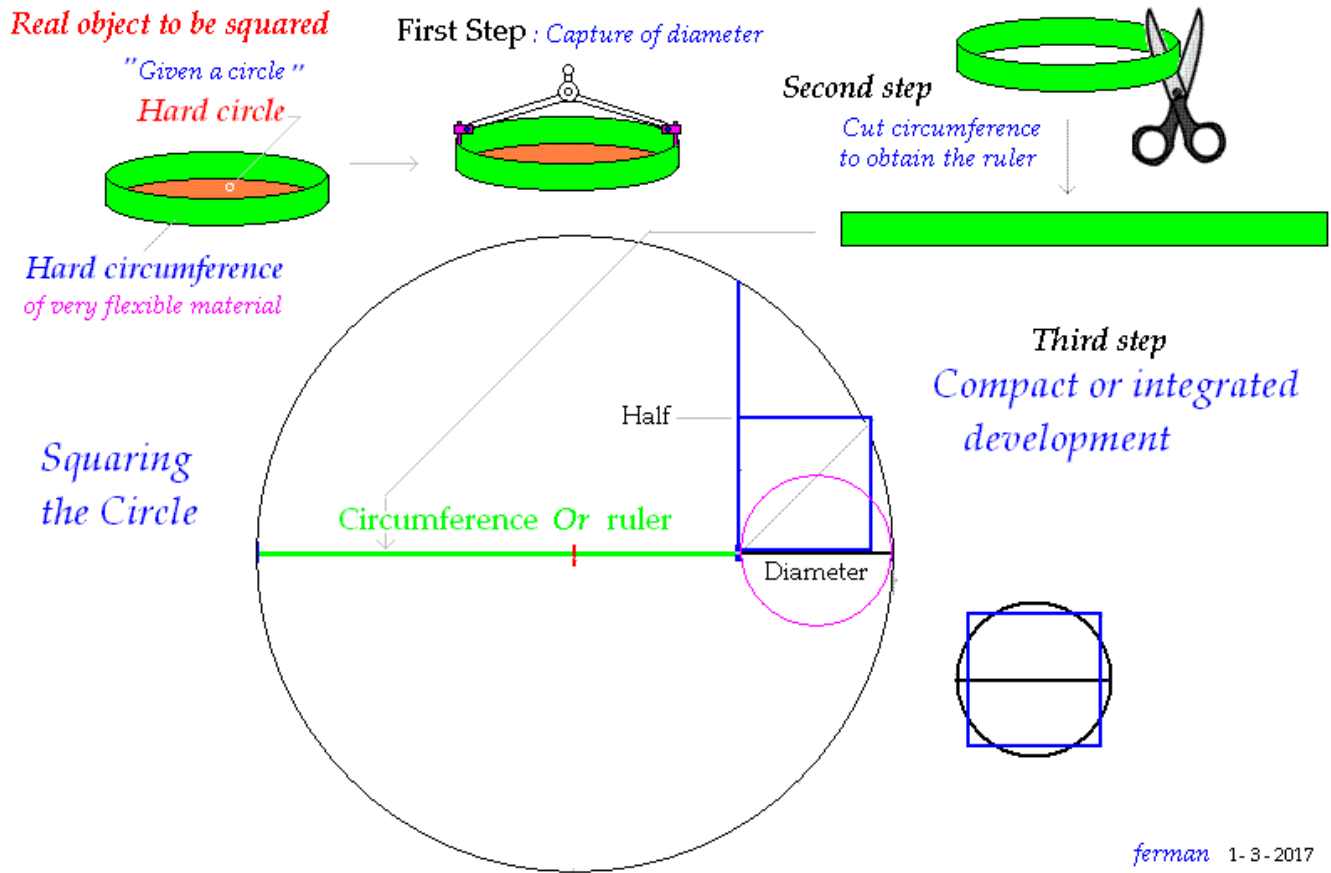
Rational Property :

$$\text{Area circle} = \pi r^2$$

$$\text{Area Square} = S^2$$

Once obtained the ruler R and the radius r we can build and squaring any circle that maintains the same ratio R/r (2π)

And now a simpler and more compact way



Construction of a pattern

And now we proceed to build a pattern of Cartesian coordinates, using for that the anterior practical solution and marking inside the pattern the relative coordinates: (radii of circles/sides of the squaring squares). Finally we mark in the pattern the straight line (l) that delimits the longitude of sides of squaring squares (f) in relation with the radius of the given circles.

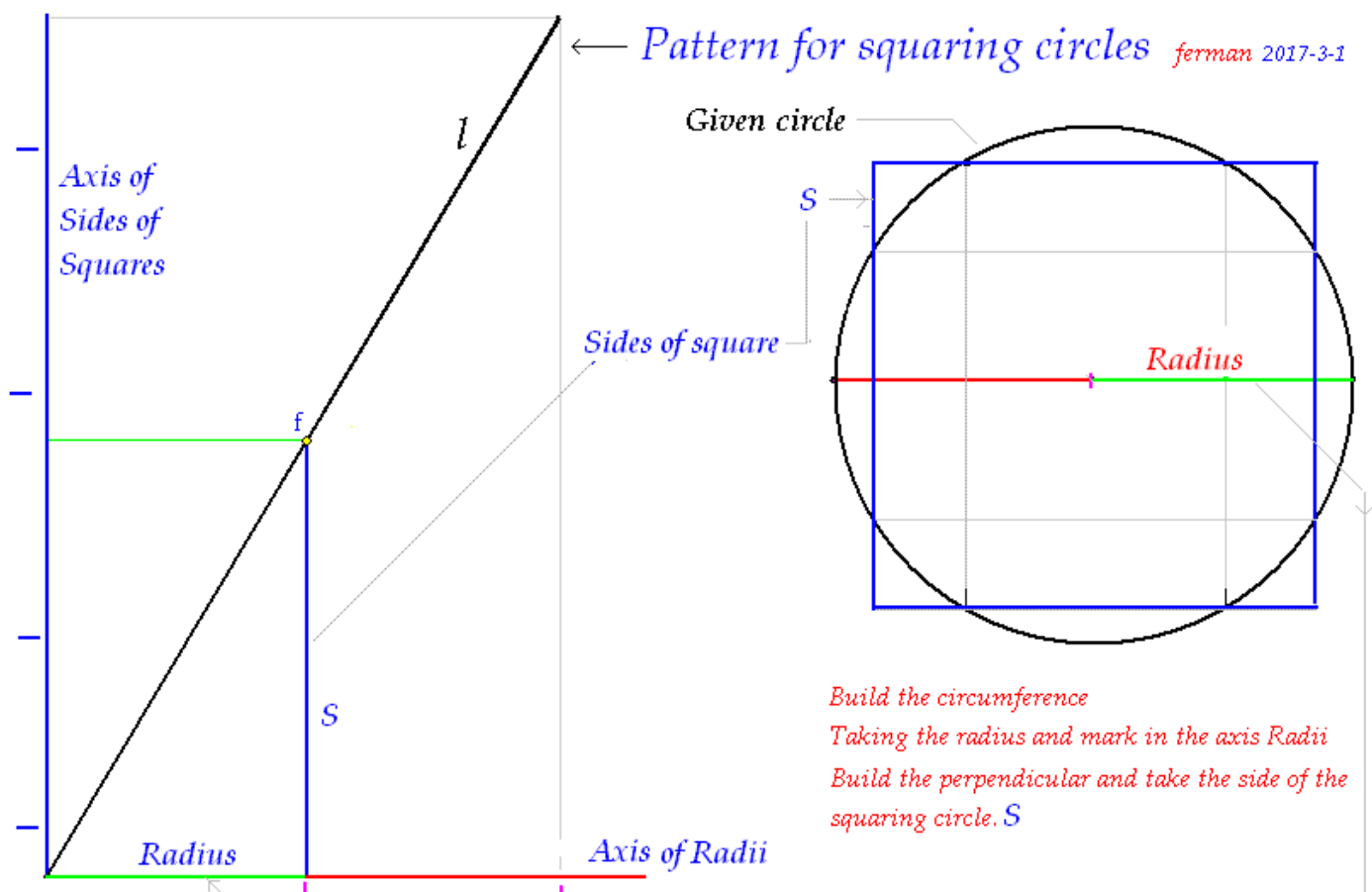
This pattern is easy of using.

Firstly we take radius of the given circle with the compass.

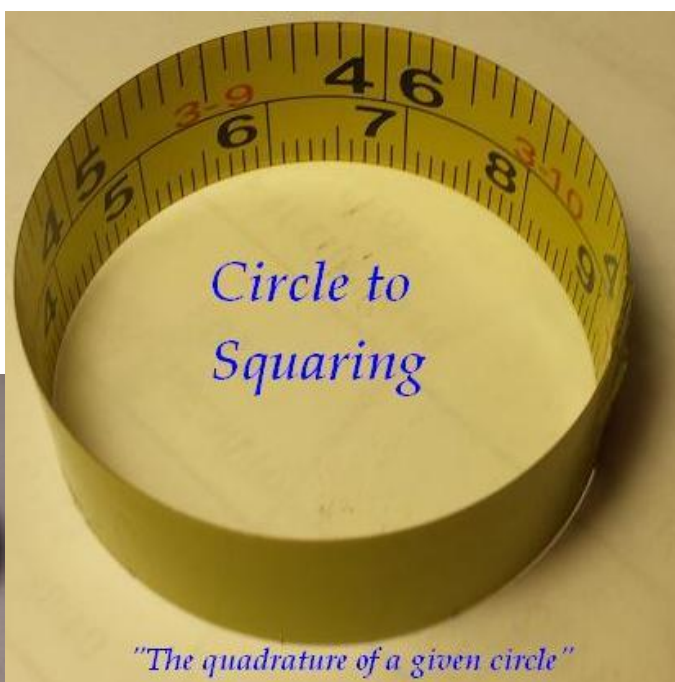
Later on we mark this radius on the radii axis of the pattern.

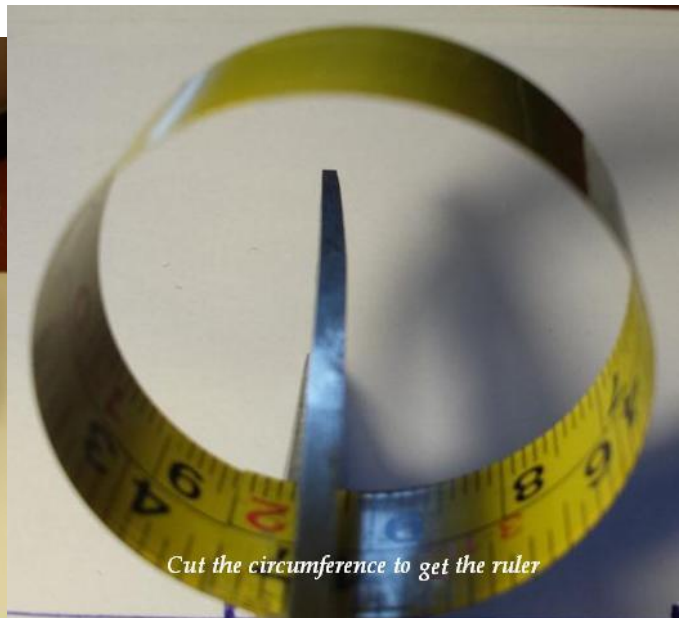
Then, we mark the perpendicular from the end of this marked radius.

And finally we take the longitude of this perpendicular that is the side of the square to build.



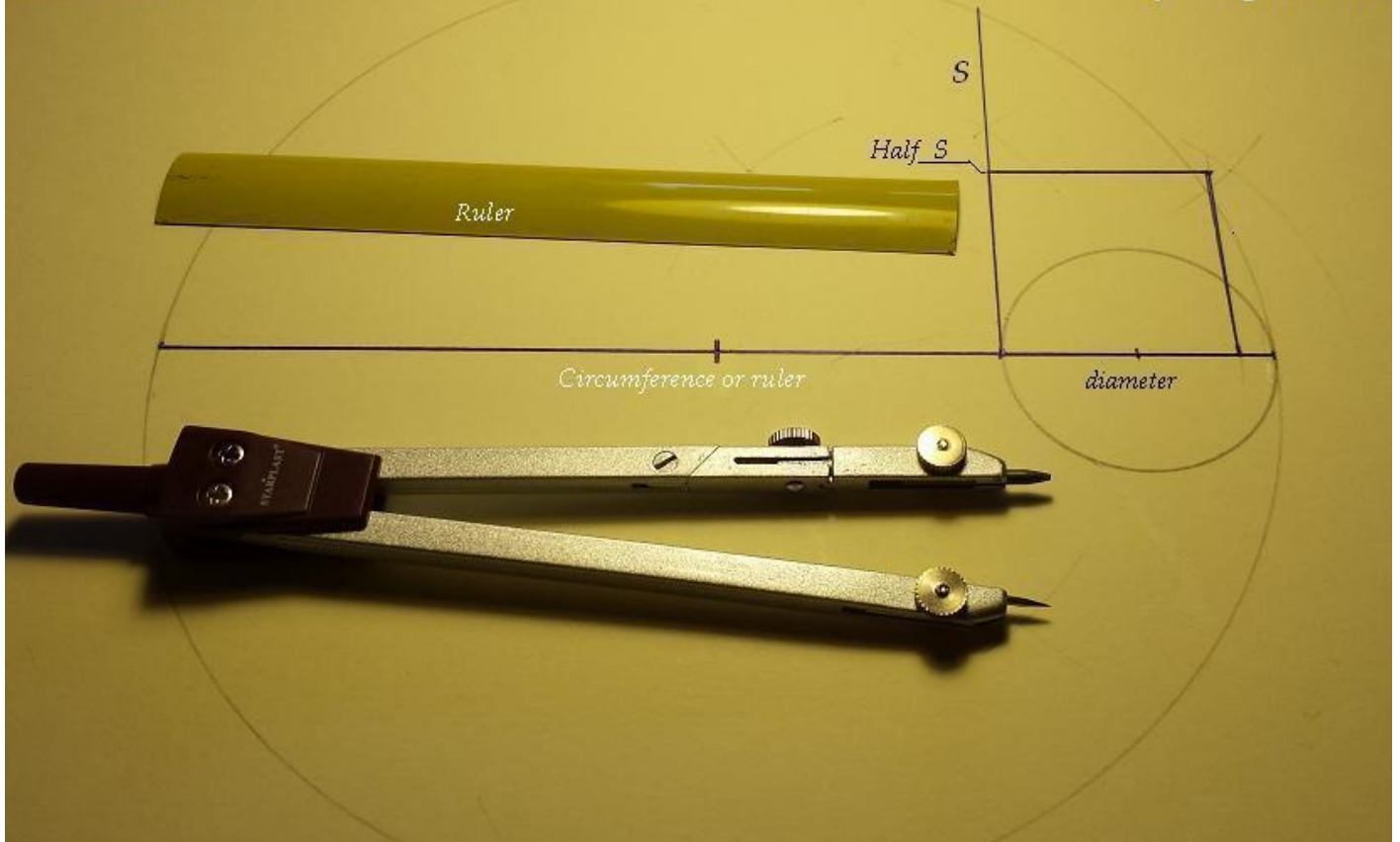
Following it is shown drawings with easy representations of simple material that could be used
 This method has been carried out with the below tools and materials with excellent and accuracy result.





Fernando Mancebo 1-4-2017

Squaring the circle



Some discussion about this topic

The below sentence has little consistence or sense, I think.

"Being Pi a not constructible number, it is also not constructible the root of Pi, and so, it is impossible the quadrature of the circle by rule and compass."

I think that assumption is not totally appropriate.

Pi is the ratio between the circumference and its diameter.

That is, a ratio, a division, an interrelation between two quantities, not a geometry figure.

Contrarily, the circumference is a geometry figure and also a constructible figure.

In the same sense, the sides of the square that give us equal area than the circumference is also a constructible parameter.

In the reality of facts, (for example a coin), the circumference and its diameter are integer values. Another question is to find its ratio, but that question is expressly prohibited in obtaining the quadrature of the circle, since any metric notations is prohibited, only we can produce geometric figures.

* As you can see, this method is similar to many other exposed through time, where the side of the square is obtained by the composition of semi-circumference with the circle's radius, but in our case using a real and practical circumference to be squared its interior circle, and so, I use the advantages that his method gives us.

That is, the possibility of taking the integer longitude of the circumference by means of the ruler, which has been manufactured from that.

P.D.

I make this work because of I understand that who love mathematics should have the duty of trying squaring the circle.